

Application No. 10/707,252
Docket No. 13DV-14265
Amendment dated January 6, 2005
Reply to Office Action of October 6, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A coating system on a substrate, the coating system comprising a beta-phase NiAl intermetallic overlay coating comprising inner and outer regions, the inner and outer regions being deposited from first and second coating sources, respectively, the first coating source having a higher chromium content than the second coating source so that the inner region contains ~~containing~~ more chromium than the outer region.

Claim 2 (original): A coating system according to claim 1, wherein the inner region of the overlay coating contains, by weight, about 5% to about 20% chromium, and the outer region of the overlay coating contains, by weight, about 1% to about 5% chromium.

Claim 3 (original): A coating system according to claim 1, wherein the overlay coating contains nickel, aluminum, chromium, and zirconium and optionally one

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or more of hafnium, yttrium, titanium, tantalum, silicon, platinum, rhenium and ruthenium.

Claim 4 (currently amended): A coating system according to claim 1, further comprising a limited diffusion zone between the substrate and the inner region of the overlay coating, the diffusion zone containing elements that have interdiffused from the substrate and the overlay coating. ~~wherein the overlay coating consists of nickel, aluminum, chromium, zirconium, and incidental impurities.~~

Claim 5 (currently amended): A coating system according to claim 4, ~~claim 1~~, wherein the inner region of the overlay coating consists of, by weight, about 20% to about 30% aluminum, about 5% to about 20% chromium, about 0.2 to about 1.5% zirconium, the balance nickel and incidental impurities.

Claim 6 (currently amended): A coating system according to claim 4, ~~claim 1~~, wherein the outer region of the overlay coating consists of, by weight, about 20% to about 30% aluminum, about 1% to about 5% chromium, about 0.2 to about 1.5% zirconium, the balance nickel and incidental impurities.

Claim 7 (original): A coating system according to claim 1, wherein the inner

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region of the overlay coating contains about 10 weight percent chromium.

Claim 8 (original): A coating system according to claim 1, wherein the outer region of the overlay coating contains about 2 weight percent chromium.

Claim 9 (original): A coating system according to claim 1, wherein the outer region of the overlay coating contains more aluminum than the inner region.

Claim 10 (original): A coating system according to claim 1, wherein the inner and outer regions are discrete layers of the overlay coating.

Claim 11 (original): A coating system according to claim 1, wherein the inner and outer regions are not discrete layers of the overlay coating.

Claim 12 (original): A coating system according to claim 1, further comprising a thermal-insulating ceramic layer adhered to the overlay coating.

Claim 13 (original): A coating system on a gas turbine engine component, the coating system comprising a beta-phase NiAl intermetallic overlay coating, the overlay coating comprising an inner region and an outer region that defines an outer

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surface of the overlay coating, the inner region consisting of, by weight, 20% to 30% aluminum, about 5% to about 20% chromium, about 0.2% to about 1.5% zirconium, the balance nickel and incidental impurities, the outer region consisting of, by weight, 20% to 30% aluminum, about 1% to about 5% chromium, about 0.2% to about 1.5% zirconium, the balance nickel and incidental impurities, the inner region containing more chromium than the outer region.

Claim 14 (original): A coating system according to claim 13, wherein the inner region of the overlay coating contains about 10 weight percent chromium.

Claim 15 (original): A coating system according to claim 13, wherein the outer region of the overlay coating contains about 2 weight percent chromium.

Claim 16 (original): A coating system according to claim 13, wherein the outer region of the overlay coating contains more aluminum than the inner region.

Claim 17 (currently amended): A coating system according to claim 13, further comprising a limited diffusion zone between the substrate and the inner region of the overlay coating, the diffusion zone having a thickness of not more than about five micrometers and containing elements that have interdiffused from the substrate and the

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~~overlay coating. wherein the outer region contains at least 18 weight percent aluminum
and the inner region contains not more than 18 weight percent aluminum.~~

Claim 18 (original): A coating system according to claim 13, wherein the
inner and outer regions are discrete layers of the overlay coating.

Claim 19 (original): A coating system according to claim 13, wherein the
inner and outer regions are not discrete layers of the overlay coating.

Claim 20 (original): A coating system according to claim 13, further
comprising a thermal-insulating ceramic layer adhered to the overlay coating.